

**REMARKS**

Claims 1-15 and 23-40 are pending. Claims 1 and 23 are in independent form.

In the action mailed April 18, 2007, claim 1 was rejected under 35 U.S.C. § 112, second paragraph, as indefinite. Claim 1 has been amended to obviate the rejection.

**CLAIM 1**

Claim 1 was rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,787,463 to Mardian (hereinafter "Mardian"). Claim 1 was also rejected under 35 U.S.C. § 103(a) as obvious over Mardian.

As amended, claim 1 relates to a semiconductor processing system that includes a variable volume chamber to provide a gas consumed in a semiconductor process, a precursor boat inside the variable volume chamber and configured to hold a liquid or a solid source of gas consumed in a semiconductor process, a pressure detector to detect a parameter indicative of a pressure of gas inside the variable volume chamber and to produce an output indicative thereof, and a pressure controller in communication with the pressure detector and the variable volume chamber. The pressure controller is to apply a force to the variable volume chamber based on the output of the pressure detector and thereby regulate the pressure of the gas inside the variable volume chamber.

Mardian neither describes nor suggests a semiconductor processing system that includes a precursor boat inside a variable volume chamber and configured to hold a liquid or a solid source of gas consumed in a semiconductor process, as recited in claim 1.

In this regard, Mardian deals with variable volume accumulator reservoirs. *See, e.g., Mardian*, col. 2, line 2-4. Mardian's accumulator reservoirs have one or more inlets that are to be connected to a vaporized deposition precursor source. *Id.*, col. 2, line 48-50. None of Mardian's accumulator reservoirs have a precursor boat therein.

This is not surprising given that, during operation, Mardian's accumulator reservoirs are to accumulate a reservoir of vaporized deposition precursor fed through such inlets. In particular, deposition precursor is fed through such inlets into Mardian's accumulator reservoirs. *Id.*, col. 4, line 15-16. The volume of the variable volume accumulator reservoir is decreased when the deposition precursor is inside the variable volume accumulator reservoir. *Id.*, col. 4, line 51-53. The inlet valve can be closed and an outlet valve opened immediately prior to or during such a volume decrease. *Id.*, col. 4, line 56-59. Such a volume decrease can expel the deposition precursor into a chamber to deposit a layer on a semiconductor substrate. *Id.*, col. 4, line 55-56.

Since Mardian neither describes nor suggests a semiconductor processing system that includes a precursor boat inside a variable volume chamber, claim 1 is neither anticipated by nor rendered obvious by Mardian. Indeed, Mardian's accumulator reservoirs are to accumulate a reservoir of vaporized deposition precursor fed through inlets. Applicant thus respectfully requests that the rejections of claim 1, and the claims dependent therefrom, be withdrawn.

CLAIM 23

Claim 23 was rejected under 35 U.S.C. § 102(e) as anticipated by Mardian. Claim 23 was also rejected under 35 U.S.C. § 103(a) as obvious over Mardian.

As amended, claim 23 relates to a chemical reactant delivery system. The chemical reactant delivery system includes a variable volume chamber having an outlet, a precursor boat inside the variable volume chamber and configured to hold a liquid or a solid source of the reactant gas, a pressure detector to detect a parameter indicative of a pressure of the reactant gas inside the variable volume chamber and to produce an output indicative thereof, and a pressure controller in communication with the pressure detector and the variable volume chamber.

The outlet of the variable volume chamber is to deliver a reactant gas from an interior region of the variable volume chamber to a reaction chamber. The pressure controller is to

apply a force to the variable volume chamber based on the output of the pressure detector and thereby regulate the pressure of the reactant gas inside the variable volume chamber.

Mardian neither describes nor suggests a chemical reactant delivery system that includes a precursor boat inside a variable volume chamber and configured to hold a liquid or a solid source of reactant gas, as recited in claim 23.

In this regard, as discussed above, Mardian deals with variable volume accumulator reservoirs that have inlets connected to a vaporized deposition precursor source. None of Mardian's accumulator reservoirs have a precursor boat therein. This is perhaps not surprising given that, during operation, Mardian's accumulator reservoirs are to accumulate a reservoir of vaporized deposition precursor fed through such inlets.

Since Mardian neither describes nor suggests a chemical reactant delivery system that includes a precursor boat inside a variable volume chamber, claim 23 is neither anticipated by nor rendered obvious by Mardian. Indeed, Mardian's accumulator reservoirs are to accumulate a reservoir of vaporized deposition precursor fed through inlets. Applicant thus respectfully requests that the rejections of claim 23, and the claims dependent therefrom, be withdrawn.


It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue, or comment does not signify agreement with or

concession of that rejection, issue, or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Applicant asks that all claims be allowed. Please apply any charges not covered, or credits, to Deposit Account No. 06-1050.

Respectfully submitted,

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